

IN THE CLAIMS

1 1. (previously amended) An electron beam duplication lithography apparatus
2 comprising:

3 a first substrate;

4 a field emitter deposited on the first substrate in a predefined pattern whereby
5 an active field emission material is deposited on the first substrate in the predefined
6 pattern on a permanent basis such that all of such field emission material emits
7 electrons on a continuous basis when activated, and whereby no active field emission
8 material resides in spaces between the predefined pattern so that no field emission of
9 electrons occurs in such spaces;

10 a second substrate positioned a distance from the first substrate;

11 an electron beam resist layer deposited on the second substrate; and

12 circuitry for establishing an electric field to thereby cause an emission of
13 electron beams from the active field emission material towards the electron beam
14 resist layer in order to modify the electron beam resist layer in a pattern substantially
15 identical to the predefined pattern.

1 2. (original) The apparatus as recited in claim 1, further comprising a magnetic
2 field lens positioned to focus the electron beams as they are emitted from the field
3 emitter towards the electron beam resist layer.

1 3. (original) The apparatus as recited in claim 1, further comprising an electric
2 field lens positioned to focus the electron beams as they are emitted from the field
3 emitter towards the electron beam resist layer.

1 4. (original) The apparatus as recited in claim 1, wherein the establishing
2 circuitry further comprises a conductive layer between the first substrate and the field
3 emitter.

1 5. (original) The apparatus as recited in claim 1, wherein the establishing
2 circuitry further comprises a conductive layer between the second substrate and the
3 electron beam resist layer.

1 6. (original) The apparatus as recited in claim 1, further comprising a
2 conductive or dielectric material deposited on the first substrate between portions of
3 the patterned field emitter.

1 7. (original) The apparatus as recited in claim 6, wherein the conductive or
2 dielectric material covers edges of the field emitter.

1 8. (original) The apparatus as recited in claim 6, wherein a surface of the
2 conductive or dielectric material is coplanar with a emitting surface of the field
3 emitter.

1 9. (original) The apparatus as recited in claim 6, wherein an emitting surface of
2 the field emitter is recessed below a surface of the conductive or dielectric material.

10. (previously canceled)

11. (previously canceled)

12. (previously canceled)

13. (previously canceled)

14. (previously canceled)

1 15. (new) The apparatus as recited in claim 1, wherein when the electric field is
2 established there is no de-activated field emission material..

1 16. (new) The apparatus as recited in claim 1, wherein it is not possible to de-
2 activate selected portions of the field emission material.

1 17. (new) The apparatus as recited in claim 1, wherein de-activation of selected
2 portions of the field emission material is not required to define the predefined pattern.

1 18. (new) The apparatus as recited in claim 1, wherein the field emitter is not
2 matrix-addressable.

1 19. (new) The apparatus as recited in claim 1, wherein the electron beam resist
2 layer is not modified in the spaces between the predefined pattern since no field
3 emission of electrons occurs in such spaces.

1 20. (new) The apparatus as recited in claim 6, wherein the conductive or
2 dielectric material is in contact with the first substrate.